Title: Asbestos-related disease: Clinico-pathological correlation

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Body: Introduction The accurate diagnosis of asbestos-related diseases is important. For compensation asbestosis is defensibly diagnosed without the aid of pathology while the diagnoses of lung cancer and mesothelioma require surgical lung biopsy. South African law makes provision for the autopsy examination of the cardio-respiratory organs of deceased miners for compensation purposes. This provides unique opportunities to correlate clinical and pathological findings. Methods Deceased cases assessed in-life for compensation using chest radiographs by the Asbestos Relief Trust and who had an autopsy at the National Institute for Occupational Health from May 2010 to May 2011 were studied. The in-life and autopsy diagnoses of asbestosis and its severity, mesothelioma and lung cancer were compared. Sensitivities, specificities and related values were calculated. Results 94 cases were studied. ARDs were diagnosed at autopsy in 78 (83%) of the cases: 47 (50%) had asbestosis, 20 (21%) mesothelioma and 15 (16%) lung cancer. Sensitivity, specificity and accuracy rates for the clinical diagnoses were 47%, 83% and 65% for asbestosis; 65%, 96% and 89% for mesothelioma and 40%, 100% and 90% for lung cancer respectively. Using an ILO grading of 1/0 and above for the radiological diagnosis of asbestosis, there were 25 (53%) false negative cases. For pathologically diagnosed slight, moderate and marked asbestosis, agreement was 31%, 53% and 58% respectively. Discussion Cases with slight asbestosis were more likely to be missed clinically (69%) than marked disease (42%). Many malignancies were undiagnosed in life. These findings underline the difficulty of diagnosing ARDs and the importance of autopsies in detecting disease missed in-life.